

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

What is Claimed is:

1. A snowmobile comprising:

a frame;

a drive including an engine connected to the frame and a drivetrain operatively coupling

5 the engine to a drive track;

the drive being disposed within an imaginary cylinder extending laterally through the snowmobile;

the imaginary cylinder having an axis and a first radius;

10 a first control point of the snowmobile being disposed at a second radius from the axis of the imaginary cylinder.

2. The snowmobile of claim 1, further including a handlebar having a rotational axis, a first grip axis and a second grip axis.

15 3. The snowmobile of claim 2, wherein the first control point is defined by an intersection of the rotational axis and a grip plane.

4. The snowmobile of claim 3, wherein the handlebar is movable between a first position in which the handlebar defines the first control point and a second position in which the  
20 handlebar defines a second control point.

5. The snowmobile of claim 3, wherein the grip plane is defined by the first grip axis and the second grip axis.

6. The snowmobile of claim 1, wherein the first radius is less than a kneecap height of a pre-selected snowmobile rider.

5 7. The snowmobile of claim 6, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman.

8. The snowmobile of claim 7, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman per MIL-STD-1472C.

10 9. The snowmobile of claim 6, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile man.

10. The snowmobile of claim 6, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile aviator per MIL-STD-1472C.

11. The snowmobile of claim 6, wherein the second radius is greater than the kneecap height of the pre-selected snowmobile rider.

20 12. The snowmobile of claim 6, wherein the second radius is greater than one half of a crotch height of a pre-selected snowmobile rider.

13. The snowmobile of claim 6, wherein the second radius is greater than the crotch height of a pre-selected snowmobile rider.

14. The snowmobile of claim 1, wherein the first radius is less than one half the  
5 kneecap height of a pre-selected snowmobile rider.

15. The snowmobile of claim 14, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman.

10 16. The snowmobile of claim 15, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman per MIL-STD-1472C.

17. The snowmobile of claim 14, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile man.

15

18. The snowmobile of claim 14, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile aviator per MIL-STD-1472C.

19. The snowmobile of claim 14, wherein the second radius is greater than one half  
20 the kneecap height of the pre-selected snowmobile rider.

20. The snowmobile of claim 19, wherein the second radius is greater than the kneecap height of the pre-selected snowmobile rider.

21. The snowmobile of claim 14, wherein the second radius is greater than one half of a crotch height of a pre-selected snowmobile rider.

22. The snowmobile of claim 14, wherein the second radius is greater than the crotch height of a pre-selected snowmobile rider.

23. The snowmobile of claim 1, further including a running board.

24. The snowmobile of claim 23, wherein the running board and the first control point are separated from one another by a distance which is greater than the kneecap height of a pre-selected snowmobile rider.

25. The snowmobile of claim 24, wherein the distance is greater than the crotch height of a pre-selected snowmobile rider.

26. The snowmobile of claim 25, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman.

27. The snowmobile of claim 26, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman per MIL-STD-1472C.

28. The snowmobile of claim 25, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile man.

29. The snowmobile of claim 25, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile aviator per MIL-STD-1472C.

30. The snowmobile of claim 24, wherein the distance is measured along a plane that intersects the first control point and is normal to a surface of the running board.

31. The snowmobile of claim 30, wherein the plane intersects the surface of the running board.

32. The snowmobile of claim 1, further including a toe stop that intersects a running board at an intersection.

33. The snowmobile of claim 32, wherein the intersection and the first control point are separated from one another by a distance which is greater than the kneecap height of a pre-selected snowmobile rider.

34. The snowmobile of claim 33, wherein the distance is greater than the crotch height of a pre-selected snowmobile rider.

35. The snowmobile of claim 33, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman.

36. The snowmobile of claim 35, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman per MIL-STD-1472C.

37. The snowmobile of claim 33, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile man.

38. The snowmobile of claim 33, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile aviator per MIL-STD-1472C.

39. The snowmobile of claim 1, wherein a cylinder bore axis of the engine is directed rearwardly and upwardly so that a center of mass of the engine is disposed rearward of a rotational axis of a crank shaft of the engine.

40. The snowmobile of claim 1, wherein the engine has a front side extending in a first direction from a cylinder bore axis of the engine and a back side extending in a second direction from the cylinder bore axis, and wherein air enters the cylinder bore from the front side of the engine, and exhaust gases exit the engine from the front side of the engine.

41. A snowmobile comprising:  
a frame;

a drive including an engine connected to the frame and a drivetrain operatively coupling the engine to a drive track;

an outer extent of the drive being disposed at a first radius from a drive center axis extending laterally through the snowmobile;

5 a first control point of the snowmobile being disposed at a second radius from the drive center axis; and

the second radius being greater than the first radius.

42. The snowmobile of claim 41, further including a handlebar having a rotational  
10 axis, a first grip axis and a second grip axis.

43. The snowmobile of claim 42, wherein the first control point is defined by an intersection of the rotational axis and a grip plane.

15 44. The snowmobile of claim 43, wherein the handlebar is movable between a first position in which the handlebar defines the first control point and a second position in which the handlebar defines a second control point.

45. The snowmobile of claim 43, wherein the grip plane is defined by the first grip  
20 axis and the second grip axis.

46. The snowmobile of claim 41, wherein the first radius is less than the kneecap height of a pre-selected snowmobile rider.



47. The snowmobile of claim 46, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman.

5 48. The snowmobile of claim 47, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman per MIL-STD-1472C.

49. The snowmobile of claim 46, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile man.

10

50. The snowmobile of claim 46, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile aviator per MIL-STD-1472C.

15 51. The snowmobile of claim 46, wherein the second radius is greater than the kneecap height of the pre-selected snowmobile rider.

52. The snowmobile of claim 46, wherein the second radius is greater than one half of a crotch height of a pre-selected snowmobile rider.

20 53. The snowmobile of claim 46, wherein the second radius is greater than the crotch height of a pre-selected snowmobile rider.

54. The snowmobile of claim 41, wherein the first radius is less than one half the kneecap height of a pre-selected snowmobile rider.

55. The snowmobile of claim 54, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman.

56. The snowmobile of claim 55, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman per MIL-STD-1472C.

57. The snowmobile of claim 54, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile man.

58. The snowmobile of claim 54, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile aviator per MIL-STD-1472C.

59. The snowmobile of claim 54, wherein the second radius is greater than one half the kneecap height of the pre-selected snowmobile rider.

60. The snowmobile of claim 59, wherein the second radius is greater than the kneecap height of the pre-selected snowmobile rider.

61. The snowmobile of claim 54, wherein the second radius is greater than one half of a crotch height of a pre-selected snowmobile rider.

62. The snowmobile of claim 54, wherein the second radius is greater than the crotch height of a pre-selected snowmobile rider.

5 63. The snowmobile of claim 41, further including a running board.

64. The snowmobile of claim 63, wherein the running board and the first control point are separated from one another by a distance which is greater than the kneecap height of a pre-selected snowmobile rider.

10

65. The snowmobile of claim 64, wherein the distance is greater than the crotch height of a pre-selected snowmobile rider.

15 66. The snowmobile of claim 65, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman.

67. The snowmobile of claim 66, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman per MIL-STD-1472C.

20 68. The snowmobile of claim 65, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile man.

69. The snowmobile of claim 65, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile aviator per MIL-STD-1472C.

70. The snowmobile of claim 64, wherein the distance is measured along a plane that intersects the first control point and is normal to a surface of the running board.

71. The snowmobile of claim 70, wherein the plane intersects the surface of the running board.

72. The snowmobile of claim 71, further including a toe stop which intersects a running board at an intersection.

73. The snowmobile of claim 72, wherein the intersection and the first control point are separated from one another by a distance which is greater than the kneecap height of a pre-selected snowmobile rider.

74. The snowmobile of claim 73, wherein the distance is greater than the crotch height of a pre-selected snowmobile rider.

75. The snowmobile of claim 73, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman.

76. The snowmobile of claim 75, wherein the pre-selected snowmobile rider is 5<sup>th</sup> percentile woman per MIL-STD-1472C.

77. The snowmobile of claim 73, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile man.

78. The snowmobile of claim 73, wherein the pre-selected snowmobile rider is a 95<sup>th</sup> percentile aviator per MIL-STD-1472C.

79. The snowmobile of claim 41, wherein a cylinder bore axis of the engine is directed rearwardly and upwardly so that a center of mass of the engine is disposed rearward of a rotational axis of a crank shaft of the engine.

80. The snowmobile of claim 41, wherein the engine has a front side extending in a first direction from a cylinder bore axis of the engine and a back side extending in a second direction from the cylinder bore axis, and wherein air enters the cylinder bore from the front side of the engine, and exhaust gases exit the engine from the front side of the engine.

81. A snowmobile comprising:  
a frame;  
an engine fixed to the frame and operatively coupled to a drive track for propelling the snowmobile;

the engine including a cylinder block defining a cylinder bore having a cylinder bore axis;

the cylinder block defining an exhaust port communicating with the cylinder bore;

the cylinder block defining an inlet port communicating with the cylinder bore;

5 the inlet port and the exhaust port being disposed on the same side of the engine; and  
a heat shield disposed between the inlet port and the exhaust port.

82. The snowmobile of claim 81, wherein the inlet port and the exhaust port are disposed on a front side of the engine.

10

83. The snowmobile of claim 81, wherein the heat shield extends between a throttle body communicating with the inlet port and an exhaust pipe communicating with the exhaust port.

15 84. The snowmobile of claim 83, wherein the heat shield is fixed to the exhaust pipe.

85. The snowmobile of claim 83, wherein the heat shield is fixed to the throttle body.

86. The snowmobile of claim 81, wherein the heat shield is fixed to the engine block.

20

87. The snowmobile of claim 81, wherein the heat shield comprises a reflective material.

88. The snowmobile of claim 87, wherein the reflective material reflects infra red radiation.

89. The snowmobile of claim 81, wherein the heat shield comprises a sheet of metal.

90. The snowmobile of claim 81, wherein the heat shield comprises a foil.